

curriculum vitae

Name : **Dr. AJIKUMARAN NAIR S.**

Residential address (for communication) : Valiyaveedu,
Devipuram, Kariyam,,
Powdikonam P. O, Thiruvananthapuram,
Kerala (State), India, PIN 695 588.

Official address : Technical Officer Gr.IV
Division of Phytochemistry and Phytopharmacology,
KSCSTE-Jawaharlal Nehru Tropical Botanic Garden
and Research Institute (KSCSTE-JNTBGRI),
Pacha- palode. P.O, Thiruvananthapuram,
Kerala (State), India, PIN 695 562.

E-mail and mobile number : saknair@rediffmail.com, +91 9447494861

Name of father : P. Sadasivan Nair

Age & Date of birth : 49 Years, 28.05.1973

Religion & Caste : Hindu, Nair

Nationality : Indian

Educational qualification

Sl.No.	Degree	Main Subject	University	Year of Passing	% of Marks/ Rank/ Distinction
1	B. Sc.	Botany	University of Kerala	1993	80 %
2	B. Ed.	Natural Science	University of Kerala	1994	68.5 %
3	M. Sc.	Biotechnology	University of Kerala	2002	85%, II rank with distinction
4	Ph.D	Biotechnology	University of Kerala	2009	NA

Research Guide ship

Recognized as **Research Guide in Pharmacology, Faculty of Medicine** under the University of Kerala. Order No. Ac. E1. A1/030/2013 dated 14.08.2013.

Ph.D thesis title, Guide's Name, Institute/Organization/University, Year of Award.

Title of the thesis- "Studies on the anti-diabetes properties of a folklore medicinal fern *Hemionitis arifolia* (Burm.) Moore."

Guide: Dr. A. Subramoniam, Director and Scientist-F (Rtd.), KSCSTE-JNTBGRI, Pacha, Palode, Thiruvananthapuram, Kerala.

Institution: KSCSTE- Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Pacha, Palode, Thiruvananthapuram, Kerala, India.

Year of award: 2009.

Employment details

- A) Designation : Technical Officer
Period : 1998 to till date
Address : Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Pacha- palode. P.O, Thiruvananthapuram, Kerala (State), India, PIN 695 562.

Work experience (in chronological order)

Sl.No	Positions held	Name of the Institute	From	To	Pay Scale
1	Technical Officer Grade -I	KSCSTE- JNTBGRI, Palode, Thiruvananthapuram, Kerala, India.	1998	2003	Rs.4,600- 7,125/-
2	Technical Officer Grade -II	KSCSTE- JNTBGRI, Palode, Thiruvananthapuram, Kerala, India.	2003	2009	Rs. 9,190- 15,510/-
3	Technical Officer Grade -III	KSCSTE- JNTBGRI, Palode, Thiruvananthapuram, Kerala, India.	2009	2014	Rs. 30,700-65,400/-
4	Technical Officer Grade -IV	KSCSTE- JNTBGRI, Palode, Thiruvananthapuram, Kerala, India.	2014	Continuing	Rs. 39,500-83,000/-

B) Designation : Invited Guest Faculty (Biotechnology)

Sl.No	Positions held	Name of the Institute	From	To	Pay Scale
1	Invited Guest Faculty (For post graduate students)	Department of Biotechnology, University of Kerala, Karyavattom, Thiruvananthapuram, Kerala, India.	2002	2007	Honorary

Research experience

I have 25 years of research experience in the area of Phytopharmacology, Biotechnology and Plant-Animal interaction. In biotechnological-phytopharmacology area my research concentrated in the evaluation of plant derived principles for their anti-diabetes, anticancer, hepato-protective, aphrodisiac, immunomodulatory, anti-hyper lipidemic, Intestinal absorption, anti-microbial activity, *in vivo* and *in vitro* anti-oxidant activities etc. Plant-animal interaction includes chemico-pharmacological interaction between insects and plants with special emphasis on commensalism, symbiosis, pray trapping mechanism etc. I also have ample experience in Protein isolation, SDS-PAGE, DNA and RNA isolation, RAPD, gene silencing and cloning, animal cell cultures, blotting techniques, rat pancreatic islet isolation and culture, insulin release assay, radioactive tracer technique, microbial isolation and culture, other delicate molecular biology techniques, light, UV and phase contrast microscopy, enzyme assays, isolation of plant principles (TLC, column chromatography), fFlowcytometry, field emission scanning electron microscopy, TEM, Raman microscopy, FT-IR, UV-Vis spectroscopy, circular dichroism spectroscopy, various types of plate readers (visible, fluorescent and chemiluminescence), Atomic force microscopy, NIR Spectroscopy, contact angle goniometer, various format of Gel documentations (Visible and chemiluminescence), rheometer, Scintillation counter etc.

Teaching experience

I have five years of teaching experience (2002 to 2007) as invited faculty to the Department of Biotechnology, University of Kerala, Kariavattom, Thiruvananthapuram, Kerala. As invited faculty, I took both theory and practical classes to M.Sc. Biotechnology students for their core subjects in molecular biology, microbiology, biochemistry, genetic engineering, industrial microbiology, cancer biology and bioprocess engineering.

Honors/ Awards

- 1) **II Rank** in M.Sc Biotechnology with Distinction
- 2) **CSIR-UGC Lectureship**- 19.08.2002.
- 3) Recipient of **Jaipur Prize- 2006** awarded by Indian Pharmacological Society (For the best Scientific paper in the field of cancer biology. Shylesh B S, **Ajikumaran Nair S** and Subramoniam A (2005). Induction of cell specific apoptosis and protection from Dalton's lymphoma challenge in mice by an active fraction from *Emilia sonchifolia*. Indian J. Pharmacol.37: 232- 237.
- 4) **Best oral presentation Award** for the paper entitled "Anti-diabetes activities of *Hemionitis arifolia* (Burm.) Moore: efficacy evaluation in type-2 streptozotocin diabetic rats and isolation of active component" by Indian Association of Biomedical Scientists in the 28th annual conference at Thiruchirappalli-2007.
- 5) Recipient of **Mukherjee Prize- 2007** awarded by Indian Pharmacological Society (For the best Scientific paper published in Indian Journal of Pharmacology from 2003-2005).
- 6) **Membership Title**- Received Membership title (**MABMS**) conferred by the Indian Association of Biomedical Scientists, November 2009.
- 7) **Best poster presentation Award** for the paper entitled "Induction of cancer cell specific apoptosis and protection of mice from Dalton's Lymphoma Ascitis cancer with a steroid positive component from *Zornia diphilla* (L.) Pers" by the Kerala Veterinary and Animal Science University for the paper to Arun Kunar R, **Ajikumaran Nair S** and Subramoniam A in the National seminar on newer prospective of ethnopharmacology and its clinical implications: opportunities and challenges, conducted at the Department of veterinary pharmacology and toxicology, College of Veterinary and Animal Science, Mannuthi-2011.
- 8) **Dr. P. D. Sethi Memorial Annual National Award** from Anchrom Enterprises India Pvt. Ltd., 2018 for best Research Paper on Application of TLC / HP-TLC in Pharma, Herbal & Other Chemical Analysis. Research Paper entitled 'Citrus peel prevents cancer' published in Phytomedicine (2017).. **Ajikumaran Nair S**, Rajani Kurup SR, Akhila S Nair, Sabulal Baby. Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Thiruvananthapuram.

Officer bearer/ Membership in scientific societies

- a) Joint Secretary to Kerala Chapter- IABMS (2006-2009).
- b) Elected representative (from Kerala State, India) of Southern Regional Indian Pharmacological Society- 2009-2012.
- c) Life member of Indian Pharmacological Society (IPS)
- d) Life member of Indian Association of Biomedical Scientists (IABMS).
- e) General Secretary, Sasthrabharathi, Thiruvananthapuram, Kerala.

Investigator in scientific programmes.

As Co-investigator in in-house scientific programmes :-

- a) Studies on the mechanism of action and pharmacological profile of active fraction of *Trycopus zeylanicus* leaf towards developing the same as a standardized anti-stress/adaptogenic herbal drug (phytomedicine) (completed).
- b) Pharmacological evaluation of *Hemidesmus indicus* root (extract/ active fraction) for its utility as a phytomedicine to improve efficacy of ORS (Completed).
- c) Chemical prospecting of plants in the Kerala region of Western Ghats for bioactive Molecules (on going).
- d) Chemical prospecting of the aromatic plants in the Kerala region of Western Ghats (on going).
- e) Search for antiviral principles from medicinal and aromatic plants (on-going)

As Co- investigator of the external funded project:

- a) Establishment of SHRESTA (State Higher Research Centres of Excellence in Science & Technology Applications) Centre of Excellence in Phytochemical-nanotechnology funded by SHRESTA scheme of KSCSTE, Total project cost: 200Lakhs (2002-2007, 5 years).

Scientific Workshops/ Training attended (National)

- a) National workshop on Gene technology organized by Biotech Consortia, Department of Biotechnology, Malankara Catholic College, Kaliyikkavilai, Kanyakumari District, Tamil Nadu from 26-02-2007 to 3-03-2007 and get trained in m-RNA isolation, Southern blotting and gene isolation.

- b) National Workshop on Genotoxicity organized by Amala Cancer Research Centre, Trissur, Kerala from 1.12.2007 to 7.12.2007 and get trained in comet assay, micro nuclear assay, chromosome mutation test, genotoxicity test using various normal cells (RBC, bone marrow cells, lymphocytes, macrophages) and fluorescent test for genotoxicity.
- c) RNA-seq Data Analysis Hands-on Workshop organized the Department of Computational Biology and Bioinformatics, University of Kerala, Karyvattom from 23.09.2019 to 27.09.2019.
- d) On various topics of nanotechnology (site specific controlled drug delivery, agri-nanotechnology, synthesis of graphene oxide, peptide-polysaccharide conjugates and formulation of chitosan based nano and microgels) from Institute of Nano Sciences and Technology, Sector 81, Mohali, Punjab.

Scientific Workshops/ Training attended (International)

Participated and co-authored a research paper entitled "Isolation and biological activity studies of two phenolic compounds from the Indian pitcher plant, *Nepenthes khasiana*" in the **13th ICPS International Conference, Himeji, Japan** from 22.05.2023 to 02.06.2023.

Organizing National Symposium / Science Congress

- a) Worked as organizing committee member and also in scientific committee for organizing National Symposium and 27th Annual Conference of Indian Association of Biomedical Scientist, organized by TBGRI from 25.11.2006-27.11.2006.
- b) Worked as transport committee member in the 21st Kerala Science Congress organized by TBGRI and Kerala minerals and Metals Ltd. at Kollam from 28.01.2009 to 31.01.2009.
- c) Committee Member of National Science Expo-2012 and Member of publication committee of 25th Kerala Science Congress 2013.
- e) Member of focal theme committee of 26th Kerala Science Congress 2014.

Organizing programmes in Special Programmes and Project Management Division at Kerala State Council for Science, Technology and Environment (KSCSTE)

- 1) Scientific Programmes
 - a) Rural Technology programme.
 - b) Engineering and Technology Programme.
 - c) Seminar/ Symposia/ Workshop Programme.
 - d) Science Popularization Programme.

- 2) Science Literature Award-2007.
- 3) National Science Day and National Technology Day celebrations programmes-2009 in Kerala.
- 4) Organized five National/ Regional workshops on Intellectual Property Rights and related subjects.

Peer reviewed Scientific Publications/Chapter in Books/Review articles

1) **Ajikumaran Nair, S.**, Anil John J., Sabu, T., Gokul, B.S., Yeshwanth, H.M. Sabulal, B. (2023). 'Sharpshooter' in Botanic Garden: The tale of a rare plant-insect interaction. *Plant Biology*, February 26, doi:10.1111/plb.13516

2. Konnath Chacko Koshy, Bhaskaran Gopakumar, Antony Sebastian, **Ajikumaran Nair S.**, Anil John Johnson, Balaji Govindan, Sabulal Baby (2022). Flower-fruit dynamics, visitor-predator patterns and chemical preferences in the tropical bamboo, *Melocanna baccifera*. *PLoS One*, November 16, <https://doi.org/10.1371/journal.pone.0277341>.

3) **Dr. S. Ajikumaran Nair** and V. Gayathri. Toxicity of scaffolds, In *Biomedical Applications and Toxicity of Nanomaterials*. Eds, Mohanan, PV and SUDHA K; Springer Nature, Singapore.

4) Smitha Rani SP, Rajani Kurup S R, **Ajikumaran Nair S**, Nusaifa Beevi P, Sreeja Thankappan, Sabulal Baby (2021). Antiproliferative activity of leaf, fruit pericarp essential oils of *Syzygium palodense*. *Phytomedicine Plus*, September 23, <https://doi.org/10.1016/j.phyplu.2021.100128>.

5) Ajikumaran Nair Sadasivan Nair, Reshma Vijayakumari Raveendran Nair, Aroma Prasanna Rajendran Nair, Akhila Sasikumar Nair, Sabu Thyagarajan, Anil John Johnson, Sabulal Baby (2020). Antidiabetes constituents, cycloartenol and 24-methylenecycloartanol, from *Ficus krishnae*. *PLoS One*, Jun 25;15(6):e0235221. doi: 10.1371/journal.pone.0235221.

6) Rajani Kurup, **Ajikumaran Nair**, Uthayakumari Kalavathy and Sabulal Baby (2019). Chemical profile and anticancer activity of *Polyscias guilfoylei* leaf essential oil. *The Natural Products Journal*. DOI: 10.2174/2210315509666190624103355.

- 7) **Ajikumar Nair S** , Rajani Kurup SR , Akhila S Nair ,Sabulal Baby(2017). Citrus peels prevent cancer. *Phytomedicine*. DOI: 10.1016/j.phymed.2017.08.011
- 8) Balaji G, Anil John J, **Ajikumar Nair S**. Gopakumar B, Sri Lakshmi K, Venkataraman R, Koshy KC and Sabulal B (2016). Nutritional properties of the largest bamboo fruit *Melocanna baccifera* and its ecological significance. Scientific report, May 19;6:26135. doi: 10.1038/srep26135.
- 9) Mohamed Salim. Rajesh Rajendran, **Ajikumar Nair S** Mathew Dan and Sabulal Baby (2016). Chemical composition and biological activities of rhizome and fruit rind essential oils of *Alpinia mutica* from south India. *Journal of Essential Oil Research* 28: 428-435.
- 10) Mohamed Salim, Ahmedul Kabeer T, **Ajikumar Nair S**, Mathew Dan, Sabu M and Sabulal Baby (2016). Chemical profile, antiproliferative and antioxidant activities of rhizome oil of *Zingiber anamalayanum* from Western Ghats in India. *Natural product Research*. 30:17,1965-1968
- 11) Sony George, **Ajikumar Nair S**, Ramaswamy Venkataraman and Sabulal Baby (2015). Composition, antibacterial and anticancer activities of volatile oil of *Melicope denhamii* leaves. *Nat Prod Res.* 29:1959- 1962 (doi: 10.1080/14786419.2015.1013471).
- 12) Sony George, **Ajikumar Nair S**, Anil J Johnson, Ramaswamy Venkataraman and Sabulal Baby (2015). O-Prenylated flavonoid, an antidiabetes constituent in *Melicope lunu-ankenda* . *Journal of Ethnopharmacology*. *J Ethnopharmacol.* 168: 158-163. (doi: 10.1016/j.jep. 2015.03.060).
- 13) Arunkumar R, **Ajikumar Nair S**, Rameshkumar KB and Subramoniam A (2014). The Essential Oil Constituents of *Zornia diphylla* (L.) Pers, and Anti-Inflammatory and Antimicrobial Activities of the Oil. *Rec. Nat. Prod.* 8: 385-393.
- 14) **Ajikumar Nair S**, Sabulal, Radhika J, Arunkumar R, Subramoniam A (2014). Promising anti-diabetes mellitus activity in rats of β -amyrin palmitate isolated from *Hemidesmus indicus* roots. *European Journal of*

Pharmacology,734:77–82.

14) Arunkumar, R, **Ajikumar Nair S** and Subramoniam, A (2012). Effectiveness of *Zornia diphylla* (L.) pers. against fungal diseases. Annals of phytomedicine. 1: 81-89.

16) Arun Kunar R, **Ajikumar Nair S** and Subramoniam (2012). Induction of cancer cell specific apoptosis and protection of mice from Dalton's Lymphoma Ascitis cancer with a steroid positive component from *Zornia diphylla* (L.) Pers" Journal of Pharmacology and Pharmacotherapeutics. 3: 233-241.

17) Bino Kingsley R, **Ajikumar Nair S**, Anil John J, Manisha Mishra, Brindha P and Subramoniam A (2012). Anti-Diabetes Mellitus Activity of *Stereospermum tetragonum* DC. in Alloxan Diabetic Rats. J Pharmacol. Pharmacotherapy. 2: 191-193.

18) Subramoniam A, Asha VV, **Ajikumar Nair S**, Sreejith PS, Sureshkumar PK, Rajendran K, Karunagaran D and Ramalingam K (2011). Chlorophyll Revisited: Anti-inflammatory Activities of Chlorophyll-a and Inhibition of Expression of TNF- α Gene by the Same. Inflammation, 35: 959-66 (DOI: 10.1007/s10753-011-9399-0).Springer. IF: 5.1

19) Devipriya V, Reshmi R B, **Ajikumar Nair S**, Anil kumar S and Subramoniam A (2009). Antioxidant and anti inflammatory activities of *in-vitro* propagated *Bacopa monnieri* (L.) pannel. JMAPS.

20) Karthikeyan K, **Ajikumar Nair S** and Subramoniam A (2006). Anticancer and apoptosis induction properties of *Apium graveolens* seeds. Journal of Biomedicine.26: 47-53.

21) **Ajikumar Nair S**, Shylesh B S, Gopakumar B and Subramoniam A (2006). Anti-diabetes and hypoglycaemic properties of *Hemionitis arifolia* (Burm.) Moore in rats. Journal of Ethnopharmacology 106: 192-197.

22) **Ajikumar Nair S** and Subramanian A (2005). Indian Medicinal Plants with Anti-diabetes Properties. In: Modern and Alternative Medicine for Diabetes. Khanum A, Khan A and Khan A A (Eds.), Ukaaz Publications, Hyderabad., India. PP. 43-193.

- 23) Shylesh B S, **Ajikumaran Nair S** and Subramoniam A (2005). Induction of cell specific apoptosis and protection from Dalton's lymphoma challenge in mice by an active fraction from *Emilia sonchifolia*. In: Annual Bibliography of Significant Advances in Dietary Supplement Research, Rebecca B Costello and Leila G Saldanha (Eds.), Office of the Dietary supplements, NIH,USA.PP. 8.
- 24) Shylesh B S, **Ajikumaran Nair S** and Subramoniam A (2005). Induction of cell specific apoptosis and protection from Dalton's lymphoma challenge in mice by an active fraction from *Emilia sonchifolia*. Indian J. Pharmacol.37: 232-237.
- 25) Subramoniam A and **Ajikumaran Nair S** (2004). Application of apoptosis in the search for plant derived chemo preventive / therapeutic agents. Amala Research Bull. 24: 1-11.
- 26) Subramoniam A, Shylesh B S and **Ajikumaran Nair S** (2004). Medicinal plants for the prevention and cure of viral diseases. In: Role of Biotechnology in Medicinal and Aromatic Plants, vol; XI, Khan I A and Khanum A (Eds.), Ukaaz Publications, Hyderabad., India. PP 225-256.
- 27) Subramoniam A, Subhisha S, **Ajikumaran Nair S**, Shylesh B S and Nair G M (2003). Bryophytes of Kerala: A potent Source for anti-cancer agent. Amala Research Bull. 23: 78-83.

Scientific papers presented in Seminars

- 1) **Ajikumaran Nair S**, Shylesh B S, Gopakumar B and Subramoniam A (2004). Anti-hyperglycaemic activity of *Hemionitis arifolia* (Burm.) Moore in rats. In: abstract, Southern Regional Conference of Pharmacologists, Indian Pharmacolical Society 2004. PP. 47.
- 2) Shylesh B S, **Ajikumaran Nair S** and Subramoniam A (2004). Induction of cell specific apoptosis by a triterpene from *Emilia sonchifolia*.(Aerial part). In: abstract, Southern Regional Conference of Pharmacologists, Indian Pharmacolical Society 2004. PP. 54.
- 3) **Ajikumaran Nair S** (2005). Studies on the Anti-diabetes properties of *Hemionitis arifolia* (Burm.) Moore. in alloxan induced diabetic rats. National Science day celebration, Tropical Botanic Garden and Research Institute- 2005.
- 4) **Ajikumaran Nair S** and Subramoniam A (2006). Anti-diabetes of a folklore medicinal fern, *Hemionitis arifolia* (Burm.) Moore. in rats. In: abstract, Southern

Regional Conference of Pharmacologists, Indian Pharmacological Society- 2006. PP. 50.

5) Karthikeyan K, **Ajikumaran Nair S** and Subramoniam A (2006). Anticancer and apoptosis induction properties of *Apium graveolens* seeds. In: National Symposium on current trends in the development of Herbal drugs and XXVII Annual conference of IABMS-2006. PP. 117-118.

6) **Ajikumaran Nair S** and Subramoniam A. (2007). Anti-diabetes activities of *Hemionitis arifolia* (Burm.) Moore: efficacy evaluation in type-2 streptozotocin diabetic rats and isolation of active component. In: abstract, Symposium on bio-resources in the development of medicine and XXVIII Annual conference of IABMS-2007. PP 85-86.

7) Subramoniam A, **Ajikumaran Nair S**, Anilkumar S, Rajendran K and Sureshkumar P K (2009). Chlorophyll revisited: anti-inflammatory and anti-oxidant properties of chlorophyll a and pheophytin a. In: abstract, 21st Kerala Science Congress-2009, PP 608-610.

8) Arun Kumar R, **Ajikumaran Nair S** and Subramoniam A (2010). Isolation and evaluation of anti-fungal principle from *Zornia dophylla* (L.) Pers, A traditional medicinal plant. In XXXI Annual conference of IABMS-2010.

9) Arun Kumar R, **Ajikumaran Nair S** and Subramoniam A (2011). Induction of cancer cell specific apoptosis and protection of mice from Dalton's Lymphoma Ascitis cancer with a steroid positive component from *Zornia diphilla* (L.) Per. In the National seminar on newer prospectives of ethnopharmacology and its clinical implications: opportunities and challenges, conducted at the Department of veterinary pharmacology and toxicology 2011, College of Veterinary and Animal Science, Mannuthi.

10) Arun Kumar R, **Ajikumaran Nair S** and Subramoniam A (2012). Anti-fungal efficacy of a triterpene isolated from *Zornia dophylla* (L.) Pers, a folklore medicinal plant. In International Conference on Biologically Active Molecules-2012. PP. 132-136.

11)) Bino Kingsley R, **Ajikumaran Nair S**, Anil John J, Manisha Mishra, Brindha P and Subramoniam A (2012). A promising iridoid glycoside from *Stereospermum tetragonum* DC., a tropican medicinal tree, for the treatment of diabetes mellitus. In International Conference on Biologically Active Molecules-2012. PP. 269-271.

12) Balaji G, Anil John J, **Ajikumaran Nair S**, Gopakumar.B, Venkataraman,

Koshy KC and Sabulal B (2015). Nutritional assessment of *Melocanna baccifera* fruits. In: International conference on medicinal plants: Resource for affordable new generation healthcare. CIMAP, Lucknow, India.

Guidance/ training given to M. Pharm / Ph.D students

1) Guidance given to Mr. Kiran Kumar, P of Shri Vishnu College of Pharmacy (under Andhra University) in 2012 for his M.Pharm (Pharmacology) project work entitled ' Screening of selected medicinal plants for their *in vitro* anticancer and antioxidant activities'.

2) Guidance given to Mr. Jagadeesh Babu,T of Shri Vishnu College of Pharmacy (under Andhra University) in 2012 for his M.Pharm (Pharmacology) project work entitled ' *In vitro* Anti-proliferative and antioxidant activities of selected medicinal plants'.

3) Research training and guidance given to Mr. Gholam Reza Bagary, P.hD student of Biotechnology Department, University of Kerala, Kariyavattom in 2012 for determining the anticancer activity of his research samples on DLA and normal cells.

4) Guidance given to Mrs. Parvathy Suran of Grace College of Pharmacy (under Kerala University of Health Sciences) in 2013 for her M.Pharm (Pharmaceutical analysis) project work entitled ' Phytochemical and pharmacological evaluation of dried rind of *Alpinia mutica* Roxb. (Zingiberaceae)'.

5) Guidance given to Mr. Bhanu Prakash Raj, D of Shri Vishnu College of Pharmacy (under Andhra University) in 2013 for his M.Pharm (Pharmacology) project work entitled ' *In Vitro* anti-proliferative and anti-oxidant activities of *Sterculia foitida* L.'.

6) Guidance given to Mr. Chaitanya, R.V.S.K of Shri Vishnu College of Pharmacy (under Andhra University) in 2013 for his M.Pharm (Pharmacology) project work entitled 'Evaluation of anticancer and anti-oxidant activities of *Nepenthes khasiana* Hook. f.'.

7) Guidance given to Mrs. Dhaliya Salam, A of St. Joseph's College of Pharmacy, Cherthala (under Kerala University of Health Sciences) in 2014 for her M.Pharm

(Pharmacology) project work entitled ' Studies on the anti cancer, anti-oxidant and anti-inflammatory activities of *Streculia foetida* L. stem bark'.

8) Guidance given to Miss. Surya, A.S of St. Joseph's College of Pharmacy, Cherthala (under Kerala University of Health Sciences) in 2014 for her M.Pharm (Pharmacology) project work entitled ' Anti-proliferative, anti-oxidant and hypolipidemic activities of *Ficus dalhousiae* MiQ. stem bark'.

Examiner ship / examination board member in University of Kerala/ M.G. University

- 1) As Member, Board of examiners in M.Sc Biotechnology course of University of Kerala 2012.
- 2) As examiner to the evaluation of theory papers of M.Sc Biotechnology course under University of Kerala for the year 2011.
- 3) Conducted practical examinations of M.Sc Biotechnology course- 2011 at Marthoma college of Technology, Ayoor, Chadayamangalam under University of Kerala -.
- 4) Conducted practical examinations of M.Sc Biotechnology course – 2011 at SN College of Technology, Vadakkevila, Kollam under University of Kerala .
- 5) As examiner to the evaluation of theory papers of M.Sc Biotechnology course under University of Kerala for the year 2012.
- 6) Conducted practical examinations of M.Sc Biotechnology course- 2012 at Marthoma College of Technology, Ayoor, Chadayamangalam under University of Kerala .
- 7) Conducted practical examinations of M. Sc (S1) Food and Dairy Biotechnology course - 2013 at FMN College, Kollam under University of Kerala.
- 8) Conducted practical examinations of M.Sc Phytomedical Sciences and Technology Degree Course-2014 of MACFAST, Thiruvalla, under Mahatma Gandhi University.
- 9) Conducted practical examinations of M.Sc (S1) Food and Dairy Biotechnology course-2014 at FMN College, Kollam under University of Kerala .
- 10) Conducted practical examinations of M.Sc (S4) Food and Dairy Biotechnology course-2014 at FMN College, Kollam under University of Kerala .
- 11) Conducted practical/viva examinations of M.Sc (S4) Food and Dairy Biotechnology course-2015 at FMN College, Kollam under University of Kerala
- 12) Conducted practical examinations of M.Sc Biotechnology course (S II) at SN

College, Kollam under the University of Kerala on 03.02.2016 and 04.02.2016 .

13) Conducted practical examinations of M.Sc Biotechnology course (S III) at AJ College of Science and Technology, Thonnackal, TVM under the University of Kerala on 08/06/2016 and 09/06/2016 .

14) Conducted practical examinations of M.Sc Biotechnology course (S III) at SN College, Kollam under the University of Kerala on 13.07.2016 and 14.07.2016 .

15) Evaluated Project works and conducted General Viva-Voce examinations of M.Sc Biotechnology course (S IV) at AJ College of Science and Technology, Thonnackal, TVM under the University of Kerala on 02/11/2016.

16) Conducted practical examinations of M.Sc Biotechnology course (S II) at SN College of Science and Technology, Vadakkevila, Kollam under the University of Kerala on 09.03.2017 and 10.03.2017.

17) Evaluated practical examinations of M.Sc Biotechnology course (S III) at SN College, Kollam under the University of Kerala on 11.07.2017 and 12.07.2017.

18) Evaluated Project works and conducted General Viva Voce examinations of M.Sc Biotechnology course (S IV) at AJ College of Science and Technology, Thonnackal, TVM under the University of Kerala on 28.11.2017.

19) Conducted practical examinations of M.Sc Biotechnology course (S II) at SN College, Kollam under the University of Kerala on 12.03.2018 and 13.03.2018.

20) Evaluated Project works and conducted General Viva Voce examinations of M.Sc Biotechnology course (S IV) at AJ College of Science and Technology, Thonnackal, TVM under the University of Kerala on 19/11/2018.

21) Conducted practical examinations of M.Sc Biotechnology course (S I) at SN College of Science and Technology, Vadakkevila, Kollam under the University of Kerala on 15.05.2019.

22) Conducted practical examinations of M.Sc Biotechnology course (S III) at SN College of Science and Technology, Vadakkevila, Kollam under the University of Kerala on 29.07.2019 and 30.07.2019.

23) Conducted practical examinations of M.Sc Biotechnology course (SII) at Marthoma College of Technology, Ayoor, Chadayamangalam under University of Kerala on 31.12.2019 and 01.01.2020 .

As Entrance question paper setter

I extended my service as Entrance question paper setter for the Entrance examination of M. Sc Biotechnology Course of University of Kerala-2012.

Invited talks/ as resource person

- 1) Given invited talk in the topic ' Frontiers of Biotechnology in Human Health Care' in the seminar organized by the Dept. of Biotechnology, Govt. Arts College, Thiruvananthapuram

- 2) As resource person, given a short class to the Biotechnology students of VHSS, Kallara at JNTBGRI.

- 3) Given lecture classes on pharmacology to the M. Pharm students of St. Joseph's College of Pharmacy, Cherthala.

- 4) As resource person, taken classes on Biochemistry to the integrated M. Sc Agriculture biotechnology course of Agriculture College, Vellayani.

- 5) As resource person in Student programme for excellence in experimental design (SPEED) conducted by JNTBGRI.

(Dr. S. Ajikumaran Nair)